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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,526	03/23/2004	Ilker Cengiz	MS307061.1	2509

27195 7590 12/23/2008

AMIN, TUROCY & CALVIN, LLP
127 Public Square
57th Floor, Key Tower
CLEVELAND, OH 44114

EXAMINER	
DAYE, CHELCIE L	
ART UNIT	PAPER NUMBER
2161	

NOTIFICATION DATE	DELIVERY MODE
12/23/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket1@thepatentattorneys.com
hholmes@thepatentattorneys.com
lpasterchek@thepatentattorneys.com

Office Action Summary	Application No.	Applicant(s)	
	10/806,526	CENGIZ ET AL.	
	Examiner	Art Unit	
	CHELCIE DAYE	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6-14,16,17,19,21-25,27-35 and 37-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6-14,16,17,19,21-25,27-35 and 37-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is issued in response to applicant's amendment filed July 15, 2008.

2. Claims 1, 3, 4, 6-14, 16, 17, 19, 21-25, 27-35, and 37-39 are presented. No claim added and claims 2, 5, 15, 18, 20, 26, and 36 remain cancelled.

3. Claims 1, 3, 4, 6-14, 16, 17, 19, 21-25, 27-35, and 37-39, are pending.

4. Applicant's arguments filed July 15, 2008, have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1, 3, 4, 6-14, 16, 17, 21-25, 27-32, 34, 35, 37, and 38 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In particular, independent claim 1 recites "a computer executable data structure comprising", and then proceeds to list multiple data structures and mapping schema. The claim seems to be a data structure per se and lacks a hardware component or a tangible structural element (i.e. either composed in a computer readable medium, wherein the computer readable medium falls within at least one of the four categories of patent eligible subject matter recited in 35 U.S.C. 101 (process, machine, manufacture, or composition of matter) or executable when loaded in memory).

7. Next, independent claim 13 recites "an object schema generation system", wherein the applicant's specification describes a system as being "*either hardware, a combination of hardware and software, software, or software in execution*" (see [0031]). Since the system can be solely software, this shows that the claimed subject matter does not meet the above listed statutory basis.

8. Also, independent claims 22 and 34 recite methods for "producing an object schema" and "generating an object schema", wherein the claims list multiples steps to be applied. However, when reading the claims broadly each step does not call for any transformation of an article to a different state or thing. Further, the claims do not recite any particular machine or apparatus to perform the recited steps and therefore do not recite a statutory process under Bilski.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994).

As a result, claims 3, 4, 6-12, 14, 16, 17, 21, 23-25, 27-32, 35, 37, and 38, are rejected on the same premise based on their dependency of the above rejected independent claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1,3-4,6-12,22-25,27-35, and 37-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wotring (US Patent No. 6,853,997) filed June 28, 2001, in view of Wang (US Patent No. 6,907,433) filed August 1, 2001, further in view of Ludwig (US Patent No. 6,006,230) filed January 29, 1997, and further in view of Chua (US Patent Application No. 20050210124) filed March 19, 2004.

Regarding Claims 1, 22, and 27, Wotring discloses a computer executable data structure comprising:

a first data structure that describes one or more classes which define programmatic objects (Fig.1, item 100; column 6, lines 34-40, Wotring)[1];

a second data structure that describes members of each class and comprises compound members that allow mapping of complex members as inline members of a given class, which allows inline mapping of arrays, structs

[1] Examiner Notes: 'Person' corresponds to a class.

and entity key members (Figs.1,2,9A-B; column 6, lines 37-52; column 7, lines 1-15 and 48-50; column 13, lines 39-46, Wotring)[2]; and

a third data structure that describes relationships between objects (Fig.9; column 46-56, Wotring); and

wherein members of a class include fields and properties (column 7, lines 33-40, Wotring). However, Wotring is silent with respect to providing information that can be utilized by a computer to persist object data to a database. On the other hand, Wang discloses providing information that can be utilized by a computer to persist object data to a database (column 5, lines 54-61, Wang). Wotring and Wang are analogous art because they are from the same field of endeavor of mapping objects and relational information. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Wang's teachings into the Wotring system. A skilled artisan would have been motivated to combine as suggested by Wang at column 1, lines 59-62, in order to allow object to relational mapping without providing back-reference or direct attributes in the target objects. As a result, alleviating the intrusiveness of the object design. Therefore, the combination of Wotring in view of Wang, disclose an object schema that describes data classes as well as relations between the data classes as specified in an object oriented model, is generated and utilized together with a relational schema and a mapping schema to map the

[2] Examiner Notes: 'Attributes' correspond to members.

programmatic objects to tables in the database (column 1, lines 19-22; columns 4-5, lines 66-67 and 1-16, respectively, Wang); and

wherein the mapping schema provides the mapping between the object schema and the relational schema (columns 4-5, lines 66-67 and 1-4, respectively, Wang), and the relational schema utilizes metadata associated with the database to generate an implementation specific format that represents the database structure (column 5, lines 17-29, Wang).

However, the combination of Wotring and Wang are not as detailed with respect to an alias attribute that is employed by a query language to identify a private member used to generate a query. On the other hand, Ludwig discloses an alias attribute that is employed by a query language to identify a private member used to generate a query (column 7, lines 37-47; columns 9-10, lines 56-67 and 1-412, respectively; column 14, lines 47-64, Ludwig). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ludwig's teachings into the Wotring and Wang system. A skilled artisan would have been motivated to combine in order to allow the system to be more diverse and secure. However, Wotring, Wang, and Ludwig are not as detailed with respect to the alias pointing to a public member that is to be utilized in place of the associated private member. On the other hand, Chua discloses the alias pointing to a public member that is to be utilized in place of the associated private member ([0009], Chua). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Chua's

teachings into the Wotring, Wang, and Ludwig system. A skilled artisan would have been motivated to combine in order to show that an alternate attribute can be used within the system for security purposes.

Regarding Claims 3 and 25, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein a field includes a key attribute that defines whether the field is an object key (column 13, lines 53-58, Wotring).

Regarding Claim 4, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein the properties include a path attribute that delimits the context of a class (columns 6-7, lines 64-67 and 1-17, respectively, and column 9, lines 50-53, Wotring).

Regarding Claims 6 and 28, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein the members are compound members comprising members and other compound members (Fig.1; column 6, lines 45-52, Wotring).

Regarding Claims 7 and 29, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure

wherein the compound member is an array (Fig.2; column 7, lines 48-50, Wotring).

Regarding Claim 8, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein the compound member includes a type attribute that defines the type of data identified by the compound member (Fig.4B, item 409; columns 9-10, lines 54-67 and 1-4, respectively, Wotring).

Regarding Claim 9, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein the third structure includes a type attribute that defines relationships between objects (column 9, lines 14-22, Wotring).

Regarding Claims 10 and 30, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein the relationship is one of one-to-one, one-to-many, or many-to-many (columns 5-6, lines 62-67 and 1-2, respectively, Wang).

Regarding Claims 11 and 24, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein the database is a relational database (column 2, lines 63-66, Wotring).

Regarding Claim 12, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the data structure wherein the first, second and third data structures are XML structures (column 3, lines 34-34-39, Wotring).

Regarding Claim 23, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the method wherein the classes represent objects defined by an object-oriented language (column 5, lines 50-53, Wang).

Regarding Claim 31, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the method wherein specifying class relationships comprise specifying a parent class and a child class (column 5, lines 30-40, Wang).

Regarding Claim 32, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the method further comprising specifying child members associated with the parent and child classes (column 6, lines 45-48, Wotring).

Regarding Claim 33, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose a computer readable medium having stored thereon computer executable instructions for carrying out the method (column 9, lines 58-67, Wang).

Regarding Claim 34, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose a method for generating an object schema comprising:

receiving program code that describes one or more classes which define objects (Fig.1, item 100; column 6, lines 34-40, Wotring);

describing members of each class, wherein the members of each class comprise compound members that allow mapping of complex members as inline members of a given class, which allows inline mapping of arrays, structs and entity key members (Figs.1,2,9A-B; column 6, lines 37-52; column 7, lines 1-15 and 48-50; column 13, lines 39-46, Wotring);

receiving input from a developer (column 2, lines 54-62, Wotring);

generating an object schema to be employed to facilitate mapping object components from an object oriented program to tables in a relational database (column 5, lines 5-16, Wang), wherein the generated object schema is utilized together with a relational schema and a mapping schema to map the programmatic objects to tables in the database (columns 4-5, lines 66-67 and 1-16, respectively, Wang);

wherein the mapping schema provides the mapping between the object schema and the relational schema (columns 4-5, lines 66-67 and 1-4, respectively, Wang), and the relational schema utilizes metadata associated with the database to generate an implementation specific format that represents the database structure (column 5, lines 17-29, Wang);

wherein members of a class include fields and properties (column 7, lines 33-40, Wotring); and

wherein the member properties include an alias attribute that is employed by a query language to identify a private member used to generate a query (column 7, lines 37-47; columns 9-10, lines 56-67 and 1-412, respectively; column 14, lines 47-64, Ludwig), the alias points to a public member that is to be utilized in place of the associated private member ([0009], Chua).

Regarding Claim 35, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the method wherein the developer provides input via a graphical user interface (column 3, lines 7-10, Wotring).

Regarding Claim 37, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the method wherein the schema is an XML schema (column 3, lines 34-39, Wotring).

Regarding Claim 38, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose the method wherein receiving input from a developer comprises identifying classes to be persisted and specifying relations amongst classes (column 5, lines 54-61, Wang).

Regarding Claim 39, the combination of Wotring in view of Wang, further in view of Ludwig, and further in view of Chua, disclose a computer readable medium having stored thereon computer executable instructions for carrying out the method (column 9, lines 58-67, Wang).

11. Claims 13-14, 16-17, 19, and 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US Patent No. 6,907,433) filed August 1, 2001, in view of Bigus (US Patent No. 7,136,843) filed October 23, 2002, further in view of Ludwig (US Patent No. 6,006,230) filed January 29, 1997, and further in view of Chua (US Patent Application No. 20050210124) filed March 19, 2004.

Regarding Claim 13, Wang discloses an object schema generation system comprising:

a code reader component adapted to read or retrieve code from an object-oriented program or set of programs (column 6, lines 23-25 and 41-56, Wang), the program describes objects via classes and class members (column 5, lines 5-16, Wang);

an object schema generation component that retrieves or is provided with code from the code reader component (column 5, lines 54-61 and column 6, lines 17-34, Wang), the object schema generation component produces an object schema in an extensible markup language (XML) which provides metadata concerning objects to facilitate persistence of object data to a data store (column 5, lines 30-40, Wang), such as a relational database (column 4, lines 58-59, Wang), wherein the generated object schema is utilized together with a relational schema and a mapping schema to map object data to tables in the data store (columns 4-5, lines 66-67 and 1-16, respectively, Wang);

wherein the mapping schema provides the mapping between the object schema and the relational schema (columns 4-5, lines 66-67 and 1-4, respectively, Wang), and the relational schema utilizes metadata associated with the data store to generate an implementation specific format that represents the data store structure (column 5, lines 17-29, Wang); and

wherein the object schema provides information concerning classes, members of classes, and their relationships (column 4, lines 36-53, Wang). However, Wang is silent with respect to the utilization of a rule based artificial intelligence to provide heuristics necessary to build the schema and code provided in real time. On the other hand, Bigus discloses the utilization of a rule based artificial intelligence to provide heuristics necessary to build the schema (column 4, lines 17-28, Bigus) and code provided in real time (column 2, lines 21-29, Bigus). It would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate Bigus' teachings into the Wang system. A skilled artisan would have been motivated to combine in order to provide an object-oriented framework, which allows for increased performance as needed by more complex applications. Also, Wang is silent with respect to properties of the members of classes include an alias attribute that is employed by a query language to identify a private member used to generate a query, the alias points to a public member that is to be utilized in place of the associated private member in text of a query. On the other hand, Ludwig discloses properties of the members of classes include an alias attribute that is employed by a query language to identify a private member used to generate a query (column 7, lines 37-47; columns 9-10, lines 56-67 and 1-412, respectively; column 14, lines 47-64, Ludwig). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ludwig's teachings into the Wang system. A skilled artisan would have been motivated to combine in order to allow the system to be more diverse and secure. However, Chua discloses the alias points to a public member that is to be utilized in place of the associated private member ([0009], Chua). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Chua's teachings into the Wotring, Wang, and Ludwig system. A skilled artisan would have been motivated to combine in order to show that an alternate attribute can be used within the system for security purposes.

Regarding Claim 14, Wang in view of Bigus, further in view of Ludwig, and further in view of Chua, disclose the system further comprising a data store information component adapted to provide the schema generation component with information concerning the data store (column 5, lines 17-29, Wang).

Regarding Claim 16, Wang in view of Bigus, further in view of Ludwig, and further in view of Chua, disclose the system wherein the program is specified in an object-oriented language (column 5, lines 50-53, Wang).

Regarding Claim 17, Wang in view of Bigus, further in view of Ludwig, and further in view of Chua, disclose the system wherein the program contains a plurality of object classes and fields (column 5, lines 17-29, Wang).

Regarding Claim 19, Wang in view of Bigus, further in view of Ludwig, and further in view of Chua, disclose the system wherein the object schema provides information concerning classes, members of classes, and their relationships (column 5, lines 5-16, Wang).

Regarding Claim 21, the combination of Wang in view of Bigus, further in view of Ludwig, and further in view of Chua, disclose the system wherein the object schema generation component employs a Bayesian network to infer

proper schema structures and relationships (columns 10-11, lines 61-67 and 1-4, respectively, Bigus).

Response to Arguments

Applicant argues, Wotring nor Wang disclose identifying a name of a member to be used as an alias to query a private member.

Examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "identifying a name") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed.Cir.1993). Even further, assuming that the applicant is actually arguing the newly amended feature of "include an alias attribute that is employed by a query language to identify a private member used to generate a query", is attacks against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed.Cir.1986). In particular, Wotring nor Wang were relied upon for the disclosure of the alias feature.

Applicant's arguments with respect to the newly amended claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHELCIE DAYE whose telephone number is (571)272-3891. The examiner can normally be reached on M-F, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chelcie Daye
Patent Examiner
Technology Center 2100
December 16, 2008

/Apu M Mofiz/
Supervisory Patent Examiner, Art Unit 2161